

**Amendments to the Claims:**

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A controllable optical lens, comprising:
  - a chamber housing first and second fluids (10,12), the interface between the fluids defining a lens surface (15);
  - an electrode arrangement (14,16,40,50,70) for electrically controlling the shape of the lens surface and for sensing the shape of the lens surface, the electrode arrangement comprising a plurality of driving (70) and sensing (40) electrode segments (40,70) at different angular orientations about an optical axis of the lens; and
  - a sensing arrangement (80), coupled to the sensing (40) electrode segments, to perform a sensing operation to determine [[determining,]] from at least the plurality of driving (70) and sensing (40) electrode segments (40,70), lens surface characteristics at a plurality of angular orientations.
2. (Original) A lens as claimed in claim 1, wherein the sensing arrangement (80) comprises a capacitance sensing arrangement.
3. (Previously Presented) A lens as claimed in claim 1, wherein the electrode arrangement comprises:
  - a drive electrode arrangement comprising a base electrode (14) and a side wall electrode (16).
4. (Currently Amended) A lens as claimed in claim 3, wherein the electrode arrangement further comprises a patterned top electrode (40) in addition to said base electrode (14) and said side wall electrode (16), wherein said patterned top electrode (4) is located on a top

surface of said chamber, housing said first and second fluids (10,12) which comprises the plurality of electrode segments.

5. (Original) A lens as claimed in claim 4, wherein the patterned top electrode (40) is made from a substantially transparent electrically conductive material.

6. (Original) A lens as claimed in claim 5, wherein the patterned top electrode is made from ITO.

7. (Previously Presented) A lens as claimed in claim 4, wherein the side wall electrode (16) comprises an annular electrode which surrounds the chamber.

8. (Original) A lens as claimed in claim 7, wherein the side wall electrode (16) comprises a first driving electrode portion and one or more sensing electrode portions (50), the sensing electrode portions comprising annular electrodes surrounding the chamber and spaced along the optical axis from the driving electrode portion.

9. (Previously Presented) A lens as claimed in claim 4, wherein the sensing arrangement comprises a capacitance sensing arrangement for sensing the capacitance defined between pairs of the electrode segments.

10. (Previously Presented) A lens as claimed in claim 4, wherein the sensing arrangement comprises a capacitance sensing arrangement for sensing the capacitance defined between each of the plurality of electrode segments and the side electrode.

11. (Original) A lens as claimed in claim 8, wherein the sensing arrangement comprises a capacitance sensing arrangement for sensing the capacitance defined between a plurality of pairs of electrodes, the pairs each comprising one of the plurality of electrode segments (40) and one of the sensing electrode portions (50) of the side electrode.

12. (Original) A lens as claimed in claim 3, wherein the drive electrode arrangement comprises a plurality of side wall electrodes (70) disposed angularly spaced around the chamber, and wherein the plurality of side wall electrodes comprise the plurality of electrode segments.

13. (Original) A lens as claimed in claim 12, wherein the sensing arrangement (80) comprises a resistance sensing arrangement for sensing the resistance between each of the plurality of electrode segments (70) and the base electrode (14).

14. (Original) A lens as claimed in claim 12, wherein the sensing arrangement (80) comprises a capacitance sensing arrangement for sensing the capacitance defined between each of the plurality of electrode segments (70) and the base electrode (14).

15. (Currently Amended) A lens as claimed in claim 12, further comprising a top electrode, wherein said top electrode is located on a top surface of said chamber, housing said first and second fluids (10,12).

16. (Currently Amended) A lens as claimed in claim 15, wherein the top electrode comprises a single [[central]] centrally positioned, non-segmented and non-patterned electrode.

17. (Original) A lens as claimed in claim 16, wherein the sensing arrangement comprises a capacitance sensing arrangement for sensing the capacitance defined between each of the plurality of electrode segments (70) and the top electrode.

18. (Currently Amended) A lens as claimed in claim 15, wherein the top electrode ~~comprises~~ comprises a patterned top electrode, which comprises a plurality of top electrode portions.

19. (Previously Presented) A lens as claimed in claim 15, wherein the top electrode is made from a substantially transparent electrically conductive material.

20. (Original) A lens as claimed in claim 19, wherein the top electrode is made from ITO.

21. (Currently Amended) A lens as claimed in claim 1, wherein the sensing arrangement (80) comprises a capacitance sensing arrangement, which comprises an alternating current source (26) for applying a first signal to a first electrode of a selected pair of electrodes, and a combiner (30) for combining a second signal received from a second electrode of a selected pair of electrodes with the first signal, and a filter (32).

22. (Previously Presented) A lens as claimed in claim 1, wherein the first fluid (10) comprises a polar and/or conductive liquid and the second fluid (12) comprises a nonconductive liquid.

23. (Previously Presented) A lens system comprising:

    a lens and sensing arrangement as claimed in claim 12; and  
    a drive arrangement for providing independently controllable drive voltages to the plurality of side wall electrodes based on the sensing arrangement outputs.

24. (Previously Presented) A lens system comprising:

    a lens and sensing arrangement as claimed in claim 1; and  
    a drive arrangement for providing a drive voltage to the electrode arrangement based on the sensing arrangement outputs.

25. (Currently Amended) A controllable optical lens, comprising:

    a chamber housing first and second fluids, the interface between the fluids defining a lens surface;  
    an electrode arrangement for electrically controlling the shape of the lens surface and for sensing the shape of the lens surface, the electrode arrangement comprising a plurality of driving and sensing electrode segments at different angular orientations about an optical axis of the lens; and

a sensing arrangement, coupled to the sensing electrode segments, to perform a sensing operation to determine [[determining,]] from at least the plurality of driving and sensing electrode segments, lens surface characteristics at a plurality of angular orientations.